PCT



WORLD INTELLECTUAL PROPERTY ORGAN International Bureau



(CY)

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PC

(51) International Patent Classification 6:

(11) International Publication Number:

WO 97/28797

A61K 31/41, 31/44, 31/47, 31/405

(43) International Publication Date:

14 August 1997 (14.08.97)

(21) International Application Number:

PCT/US97/01799

A1

(22) International Filing Date:

4 February 1997 (04.02.97)

(30) Priority Data:

60/011,328 9608927.1 8 February 1996 (08.02.96) US

29 April 1996 (29.04.96) GB

(71) Applicant (for all designated States except US): MERCK & CO., INC. [US/US]; 126 East Lincoln Avenue, Rahway, NJ 07065 (US).

(72) Inventors; and

- (75) Inventors/Applicants (for US only): DAHLEN, Sven-Erik [SE/SE]; 126 East Lincoln Avenue, Rahway, NJ 07065 (US). SCOLNICK, Edward, M. [US/US]; 126 East Lincoln Avenue, Rahway, NJ 07065 (US).
- (74) Common Representative: MERCK & CO., INC.; 126 East Lincoln Avenue, Rahway, NJ 07065 (US).

(81) Designated States: AL, AM, AU, AZ, BA, BB, BG, BR, BY, CA, CN, CU, CZ, EE, GE, HU, IL, IS, JP, KG, KR, KZ, LC, LK, LR, LT, LV, MD, MG, MK, MN, MX, NO, NZ, PL, RO, RU, SG, SI, SK, TJ, TM, TR, TT, UA, US, UZ, VN, YU, ARIPO patent (KE, LS, MW, SD, SZ, UG), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).

Published

With international search report.

(54) Title: METHOD OF TREATMENT AND PHARMACEUTICAL COMPOSION

(57) Abstract

A method of treating asthma, allergy and inflammation comprises treatment with a leukotriene inhibitor and loratadine either concurrently in separate doses or combined in a single pharmaceutical formulation.

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AM	Armenia	СВ	United Kingdom	MW	Malawi
AT	Austria	GE	Georgia	MX	Mexico
ΑÜ	Australia	GN	Guinea	NE	Niger
BB	Barbados	GR	Greece	NL	Netherlands
BE	Belgium	HU	Hungary	NO	Norway
BF	Burkina Faso	IE	Ireland	NZ	New Zealand
BG	Bulgaria	IT	kaly	PL	Poland
BJ	Benin	JP	Јарал	PT	Portugal
BR	Brazil	KE	Kenya	RO	Romania
BY	Belarus	KG	Kyrgystan	RU	Russian Federation
CA	Canada	KP	Democratic People's Republic	SD	Sudan
CF	Central African Republic		of Korea	SE	Sweden
CG	Congo	KR	Republic of Korea	SG	Singapore
CH	Switzerland	KZ	Kazakhsten	SI	Slovenia
CI	Côte d'Ivoire	и	Liechtenstein	SK	Slovakia
CM	Cameroon	LK	Sri Lanka	SN	Senegal
CN	China	LR	Liberia	SZ	Swaziland
cs	Czechoslovakia	LT	Lithuania	TD	Chad
CZ	Czech Republic	LU	Luxembourg	TG	Togo
DE	Germany	LV	Latvia	TJ	Tajikistan
DK	Denmark	MC	Monaco	TT	Trinidad and Tobago
EE	Estonia	MD	Republic of Moldova	UA	Ukraine
ES	Spain	MG	Madagascar	UG	Uganda
FI	Finland	ML	Mali	US	United States of America
FR	France	MN	Mongolia	UZ	Uzbekistan
GA	Gabon	MR	Mauritania	VN	Viet Nam

CROSS REFERENCE TO RELATED APPLICATION

This application is based on, and claims priority from, provisional application number 60/011,328 filed February 8, 1996.

5

15

25

30

TITLE OF THE INVENTION METHOD OF TREATMENT AND PHARMACEUTICAL COMPOSITION

10 BACKGROUND OF THE INVENTION

Loratadine is an antihistamine with H-receptor antagonist properties useful in the treatment of allergies and is described in U.S. Patent 4,282,233.

Leukotriene antagonists are known to be useful in the treatment of asthma, allergic reactions, and inflammation.

Now with the present invention, there is provided a method of treating asthma, allergy and inflammation with a combination of these two agents which is more efficacious than either agent by itself.

20 SUMMARY OF THE INVENTION

This invention is concerned with a method of treatment of asthma, allergy and inflammation by administration of an effective amount of loratadine and an effective amount of a leukotriene antagonist either by essentially concurrent administration or combined in a single pharmaceutical composition wherein the leukotriene antagonist is selected from:

A. Sodium 1-(((R)-(3-(2-(7-chloro-2-quinolinyl)ethenyl)phenyl)-3-(2-(2-hydroxy-2-propyl)phenyl)thio)methyl)cyclopropaneacetate, EP 480,717

Montelukast Sodium

B. Sodium 1-(((R)-(3-(2-(6,7-difluoro-2-quinolinyl)ethenyl)-phenyl)-3-(2-(2-hydroxy-2-propyl)phenyl)thio)methyl)cyclopropaneacetate. U.S. 5,270,324

5

10

C. 1-(((1(R)-(3-(2-(2,3-dichlorothieno[3,2-b]pyridin-5-yl)-(E)-ethenyl)phenyl)-3-(2-(1-hydroxy-1-methylethyl)phenyl)-propyl)thio)methyl)cyclopropaneacetic acid or sodium salt thereof. U.S. 5,472,964

D. N-[4-oxo-2-(1H-tetrazol-5-yl)-4H-1-benzopyran-8-yl]-p-(4-phenylbutoxy)benzamide. EP 173,516

Pranlukast

E. Cyclopentyl-3-[2-methoxy-4-[(o-tolylsulfonyl)carbamoyl]-benzyl]-1-methylindole-5-carbamate. EP 199,543

10

Zafirlukast

DETAILED DESCRIPTION OF THE INVENTION

The novel pharmaceutical composition of this invention comprises a combination of loratadine and a leukotriene antagonist selected from A, B, C, D and E, described above, as active ingredients, and optionally a pharmaeutically acceptable carrier suitable for enteral or parenteral administration. The formulations may be in solid form, as for example tablets and capsules, or in liquid form, as for example, syrups, elixirs, emulsions and injectables. In the formulation of pharmaceutical dosage forms there generally is utilized excipients such as water, gelatin, lactose starches, magnesium stearate, talc, vegetable oils, benzyl alcohol, gums, polyalkylene glycols, and petroleum jelly. A preferred formulation is mere fully described in the following Example.

In the novel method of treatment of this invention, the loratadine and leukotriene antagonist can be administered substantially concurrently as separate dosage forms or combined in the novel pharmaceutical formulation of this invention.

Although the required dosage will be determined by such factors as the patients age, sex, weight and severity of the condition being treated, the preferred human oral dosage range is about 5 to 20 mg., loratadine, 1 to 3 times per day; preferably about 10 mg. once a day. In the case of the leukotrienes, the human dosage range is also about 5 to 20 mg 1 to 3 times per day; preferably about 10 mg. once a day.

5

10

15

- 5 -

EXAMPLE

Montelukast Sodium 10 mg and Loratadine 10 mg Film Coated Tablet

Amt. Per Tablet	Ingredient
Core	>
10.4 mg	Montelukast Sodium
10.0 mg	Loratadine
66.6 mg	Microcrystalline Cellulose, NF
100.0 mg	Lactose Monohydrate, NF
6.0 mg	Croscarmellose Sodium, NF
(60.0 mg)	Purified Water, USP
1.0 mg	Magnesium Stearate, NF
200.0 mg	Core Tablet
Film Coating	
2.25 mg	Hydroxypropyl Methylcellulose 6 cp
1.25 mg	Hydroxypropyl Cellulose LF
1.50 mg	Titanium Dioxide
(33.5) mg	Purified Water
205.0 mg	Film Coated Tablet

WHAT IS CLAIMED IS:

- 1. A pharmaceutical formulation comprising as active ingredients loratedine and a leukotriene antagonist selected from
- 5 (A) montelukast sodium;
 - (B) Sodium 1-(((R)-(3-(2-(6,7-difluoro-2-quinolinyl) ethenyl)phenyl)
 -3-(2-(2-hydroxy-2-propyl)phenyl)
 thio)methylcyclopropaneacetate;
- (C) 1-(((1(R)-(3-(2-(2,3-dichlorothieno[3,2-b]pyridin-5-yl)-(E)ethenyl)phenyl)-3-(2-(1-hydroxy-1-methylethyl)phenyl)propyl) thio)methyl)cyclopropaneacetic acid or a sodium salt thereof;
 - (D) pranlukast; and
 - (E) zafirlukast; and a pharmaceutically acceptable carrier.

15

- 2. The composition of Claim 1 which is designed for oral administration.
- 3. The composition of Claim 2 comprising 10 mg of loratadine and 10 mg of a leukotriene antagonist selected from (A), (B), (C), (D) and (E).
 - 4. The composition of Claim 1, wherein the leukotriene antagonist is montelukast sodium.

- 5. The composition of Claim 4 which is designed for oral administration.
- 6. The composition of Claim 5, comprising 10 mg of each active ingredient.
 - 7. A method of treating asthma, allergy and inflammation in a patient in need of such treatment by the administration

5

25

of an effective amount of loratadine and an effective amount of a leukotriene antagonist selected from:

- (A) montelukast sodium;
- (B) sodium 1-(((R)-(3-(2-(6,7-difluror-2-quinolinyl)ethenyl)phenyl)-3-(2-(2-hydroxy-2-propyl)phenyl)thio)methyl)cyclopropaneactate;
- (C) 1-(((1(R)-(3-(2-(2,3-dichlorothieno[3,2-b]pyridin-5-yl)-(E)-ethenyl)phenyl)-3-(2-(1-hydroxy-1-methylethyl)-phenyl)propyl)thio)methyl)cyclopropaneacetic acid or a sodium salt thereof;
- 10 (D) pranlukast; and
 - (E) zafirlukast; either substantially concurrently in separate dosage forms or combined in the single pharmaceutical formulation of Claim 1.
- 15 8. The method of Claim 7, wherein the pharmaceutical formulation is designed for oral administration.
- 9. The method of Claim 7 wherein the separate dosage forms and the single pharmaceutical formulation comprise 10 mg of loratadine and 10 mg of a leukotriene antagonist selected from (A), (B), (C), (D) and (E).
 - 10. The method of Claim 7 wherein the leukotriene antagonist is (A) montelukast sodium.
 - 11. The method of Claim 10 wherein the separate dosage forms and single pharmaceutical formulation are designed for oral administration.
- 30 12. The method of Claim 11 wherein the separate dosage forms and the single pharmaceutical formulation comprise 10 mg of loratadine and 10 mg of (A), montelukast sodium.

INTERNATIONAL SEARCH REPORT

International application No. PCT/US97/01799

A. CLASSIFICATION OF SUBJECT MATTER IPC(6) 3-61k 3141, 3144, 3147, 31476 US CL :514/301, 311, 382, 415 According to Informational searched (classification (PC) or to both national classification and IPC B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) U.S.: \$14/301, 311, 382, 415 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) C. DOCUMENTS CONSIDERED TO BE RELEVANT Category* Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim N Y. US 4,282,233 A (VILANI) 04 August 1981, see column 2, lines 13-19 and column 3, lines 5-12. Y. US 4,847,275 A (TODA et al.) 11 July 1989, see column 5, lines 3-6, column 6, lines 58-64, column 90, lines 15-25 and columns 101-102 Example No. 1(230). Y. US 5,030,643 A (BERNSTEIN et al.) 09 July 1991, see column 5, lines 55-65 and column 19, lines 45-50. Y. US 5,270,324 A (ZAMBONI et al.) 14 December 1993, see column 6, lines 55-60, column 13, lines 10-12, column 68, line 57 - column 69, line 12. X. Further documents are listed in the continuation of Box C. See patent family nanex. Sepond entegories of ched documents: Y. London of the continuation of box C. See patent family nanex. Sepond entegories of ched documents: Y. London of the continuation of lines 12. X. Sepond entegories of ched documents: Y. London of the continuation of lines 12. X. Sepond entegories of ched documents: Y. London of the continuation of lines 12. X. Sepond entegories of ched documents: Y. London of the continuation of lines 12. X. Sepond entegories of ched documents: Y. London of the continuation of lines 12. X. Sepond entegories of ched documents: Y. Lo		T MATTED		
US CL. 514/301, 311, 382, 415 According to Informational Pattern Classification (PC) or to both national classification and IPC B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) U.S.: 514/301, 311, 382, 415 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) C. DOCUMENTS CONSIDERED TO BE RELEVANT Category* Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim N Y. US 4,282,233 A (VILANI) 04 August 1981, see column 2, lines 13-19 and column 3, lines 5-12. Y. US 4,847,275 A (TODA et al.,) 11 July 1989, see column 5, lines 3-6, column 6, lines 58-64, column 90, lines 15-25 and columns 101-102 Example No. 1(230). Y. US 5,030,643 A (BERNSTEIN et al.) 09 July 1991, see column 5, lines 55-65 and column 19, lines 45-50. Y. US 5,270,324 A (ZAMBONI et al.) 14 December 1993, see column 6, lines 55-60, column 13, lines 10-12, column 68, line 57 - column 69, line 12. X. Further documents are listed in the continuation of Box C. Social stategories of chied documents: Y. Lines 10-10 and the statement of	1 IDC/6\ .A61V 21/41 21/44 21/47			
According to International Platent Classification (IPC) or to both eational classification and IPC 1. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) U.S.: 514/301, 311, 382, 415 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched classification symbols and the fields searched classification of data base consulted during the international search (name of data base and, where practicable, search terms used) Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) C. DOCUMENTS CONSIDERED TO BE RELEVANT Category* Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim N Y US 4,282,233 A (VILANII) 04 August 1981, see column 2, lines 13-19 and column 3, lines 5-12. Y US 4,847,275 A (TODA et al.) 11 July 1989, see column 5, lines 3-6, column 6, lines 58-64, column 90, lines 15-25 and columns 101-102 Example No. 1(230). Y US 5,030,643 A (BERNSTEIN et al.) 09 July 1991, see column 5, lines 55-65 and column 19, lines 45-50. Y US 5,270,324 A (ZAMBONI et al.) 14 December 1993, see column 6, lines 55-60, column 13, lines 10-12, column 68, line 57 - column 69, line 12. Purther documents are listed in the continuation of Box C.	US CL :514/301, 311, 382, 415	1/405		
IL FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) U.S.: \$14/301, 311, 382, 415 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched state of the search terms used) Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) C. DOCUMENTS CONSIDERED TO BE RELEVANT Category* Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim N U.S. 4,282,233 A (VII.ANII) 04 August 1981, see column 2, lines 13-19 and column 3, lines 5-12. Y. U.S. 4,847,275 A (TODA et al.) 11 July 1989, see column 5, lines 3-6, column 6, lines 58-64, column 90, lines 15-25 and columns 101-102 Example No. 1[230]. Y. U.S. 5,030,643 A (BERNSTEIN et al.) 09 July 1991, see column 5, lines 55-65 and column 19, lines 45-50. Y. U.S. 5,270,324 A (ZAMBONI et al.) 14 December 1993, see column 68, lines 55-60, column 13, lines 10-12, column 68, lines 56-64 and contains the processor of the documents are listed in the continuation of Box C. See patent family sance. Y. Journal of the documents are listed in the continuation of Box C. See patent family sance. A column 6, lines 56-60, column 13, lines 10-12, column 68, lines 57 - column 69, line 12. Y. Journal of the documents are listed in the continuation of Box C. See patent family sance the document published or or offer the document published in the docume	According to International Patent Classif	eation (IPC) or to both national classification and IPC		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) C. DOCUMENTS CONSIDERED TO BE RELEVANT Category* Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim N US 4,282,233 A (VILANI) 04 August 1981, see column 2, lines 13-19 and column 3, lines 5-12. Y US 4,847,275 A (TODA et al.) 11 July 1989, see column 5, lines 3-6, column 6, lines 58-64, column 90, lines 15-25 and columns 101-102 Example No. 1(230). Y US 5,030,643 A (BERNSTEIN et al.) 09 July 1991, see column 5, lines 55-65 and column 19, lines 45-50. US 5,270,324 A (ZAMBONI et al.) 14 December 1993, see column 68, lines 57 - column 69, line 12. Special categories of dod documents: **Local companion of column 19, lines 10-12, column 68, lines 57 - column 69, line 12. **Special categories of cold documents: **Local companion of column 19, lines 40-50. **Special categories of cold documents: **Local companion of column 19, lines 10-12, column 68, lines 57 - column 69, line 12. **Special categories of cold documents: **Local companion of column 19, lines 10-12, column 68, lines 57 - column 69, line 12. **Special categories of cold documents: **Local companion of column 19, lines 40-50. **Special categories of cold documents: **Local companion of column 19, lines 40-50.				
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) C. DOCUMENTS CONSIDERED TO BE RELEVANT Category* Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim N US 4,282,233 A (VILANI) 04 August 1981, see column 2, lines 13-19 and column 3, lines 5-12. US 4,847,275 A (TODA et al.) 11 July 1989, see column 5, lines 3-6, column 6, lines 58-64, column 90, lines 15-25 and columns 101-102 Example No. 1(230). US 5,030,643 A (BERNSTEIN et al.) 09 July 1991, see column 5, lines 55-65 and column 19, lines 45-50. US 5,270,324 A (ZAMBONI et al.) 14 December 1993, see column 6, lines 55-60, column 13, lines 10-12, column 68, line 57 - column 69, line 12. Further documents are listed in the continuation of Box C. See patent family annex. Special estageness of cond documents: document of confider with tended of the relevant passages Provide response of cond documents: document of column 19, lines 10-12, column 68, lines 57 - column 69, line 12. Further documents are listed in the continuation of Box C. See patent family annex. Special estageness of cond documents: document of particular relevance to the set which is not considered to be of particular relevance to the set which is not considered to be of particular relevance to the continuation of the continua	Minimum documentation searched (class	ication system followed by classification symbols)	<u></u>	
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) C. DOCUMENTS CONSIDERED TO BE RELEVANT Category* Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim N US 4,282,233 A (VILANI) 04 August 1981, see column 2, lines 13-19 and column 3, lines 5-12. US 4,847,275 A (TODA et al.,) 11 July 1989, see column 5, lines 3-6, column 6, lines 58-64, column 90, lines 15-25 and columns 101-102 Example No. 1(230). US 5,030,643 A (BERNSTEIN et al.) 09 July 1991, see column 5, lines 55-65 and column 19, lines 45-50. US 5,270,324 A (ZAMBONI et al.) 14 December 1993, see column 6, lines 55-60, column 13, lines 10-12, column 68, line 57 - column 69, line 12. Further documents are listed in the continuation of Box C. Special sategories of claid documents: document defining the general state of the set which is not considered to be of particular relevance published on or after the international filing date document which may store doubt on printing data but later than its confiderable international filing data document which may store doubt on or printing data but later than the continuation or other which the publication of the continuation or other which the publication of the continuation of the continuati				
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) C. DOCUMENTS CONSIDERED TO BE RELEVANT Category* Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim N US 4,282,233 A (VILANI) 04 August 1981, see column 2, lines 13-19 and column 3, lines 5-12. US 4,847,275 A (TODA et al.) 11 July 1989, see column 5, lines 3-6, column 6, lines 58-64, column 90, lines 15-25 and columns 101-102 Example No. 1(230). US 5,030,643 A (BERNSTEIN et al.) 09 July 1991, see column 5, lines 55-65 and column 19, lines 45-50. US 5,270,324 A (ZAMBONI et al.) 14 December 1993, see column 6, lines 55-60, column 13, lines 10-12, column 68, line 57 - column 69, line 12. Further documents are listed in the continuation of Box C. See patent family annex. Sepoid estageries of cited documents: document defining the general date of the set which is not considered to be of particular relevance. The column 69, line 12. Further document published on or after the international filing date. document defining the general date of the set which is not considered to be of particular relevance. document which may be true dated to the set which is not considered to be of the set of the set which is not considered to be of the set of the set of the set which is not considered to be of the set of the set of the set which is not considered to be of the set of the set which is not considered to be of the set of the set which is not considered to be of the set of the set which is not considered to be of the set of the set which is not considered to be of the set				
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) C. DOCUMENTS CONSIDERED TO BE RELEVANT Category* Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim N US 4,282,233 A (VILANI) 04 August 1981, see column 2, lines 13-19 and column 3, lines 5-12. US 4,847,275 A (TODA et al.) 11 July 1989, see column 5, lines 3-6, column 6, lines 58-64, column 90, lines 15-25 and columns 101-102 Example No. 1(230). US 5,030,643 A (BERNSTEIN et al.) 09 July 1991, see column 5, lines 55-65 and column 19, lines 45-50. US 5,270,324 A (ZAMBONI et al.) 14 December 1993, see column 6, lines 55-60, column 13, lines 10-12, column 68, line 57 - column 69, line 12. Further documents are listed in the continuation of Box C. See patent family annex. Special estagents of cited documents: document deficing the general sac of the art which is not considered to be of particular relevance. satisf document published on or after the international filling date. document special contracts to considered to be only in the propriation of the continuation of Box C. See patent family annex. Septial estagents of cited documents: document special contracts are listed in the continuation of Box C. See patent family annex. Septial datagents of cited documents: document published on the special cited on the international filling date. document published on the special cited on the special cited on the international decoment propriate to every blank the continuation of Box C. See patent family annex. See patent	Documentation searched other than minim	m documentation to the extent that such documents are included in the	se fields seasohad	
Category* Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim N US 4,282,233 A (VILANI) 04 August 1981, see column 2, lines 13-19 and column 3, lines 5-12. US 4,847,275 A (TODA et al.) 11 July 1989, see column 5, lines 3-6, column 6, lines 58-64, column 90, lines 15-25 and columns 101-102 Example No. 1(230). US 5,030,643 A (BERNSTEIN et al.) 09 July 1991, see column 5, lines 55-65 and column 19, lines 45-50. US 5,270,324 A (ZAMBONI et al.) 14 December 1993, see column 6, lines 55-60, column 13, lines 10-12, column 68, line 57 - column 69, line 12. Further documents are tisted in the continuation of Box C. See patent family annex. Special estagence of cited documents: document defining the general state of the set which is not considered to be of particular relevance. safetir document published on a relater the international filing date or priority date to enablish the publication date of another citations or other special resource (in specifical) document efforing to an oral disclosure, use, subhibition or other special resource (in specifical) document efforing to an oral disclosure, use, subhibition or other special resource (in specifical) document efforing to an oral disclosure, use, subhibition or other special resource (in specifical) document efforing to an oral disclosure, use, subhibition or other special resource (in specifical) document efforing to an oral disclosure, use, subhibition or other special resource (in specifical) document efforing to an oral disclosure, use, subhibition or other special resource in streative step value the document is store alime value of the content of the survey			io ficios scatched	
Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim N US 4,282,233 A (VILANI) 04 August 1981, see column 2, lines 13-19 and column 3, lines 5-12. US 4,847,275 A (TODA et al.) 11 July 1989, see column 5, lines 3-6, column 6, lines 58-64, column 90, lines 15-25 and columns 101-102 Example No. 1(230). US 5,030,643 A (BERNSTEIN et al.) 09 July 1991, see column 5, lines 55-65 and column 19, lines 45-50. US 5,270,324 A (ZAMBONI et al.) 14 December 1993, see column 6, lines 55-60, column 13, lines 10-12, column 68, line 57 - column 69, line 12. Further documents are tisted in the continuation of Box C. Special estageries of cited documents: document which may favor doubt on a priority date of souther citations or other special resource of special control of special of acoder citation or other special resource of special control of special columns of a souther citation or other special resource on special of second of special columns of acoder citation or other special resource of special control of special columns of a souther citation or other special resource of special columns of a souther citation or other special resource of special columns of acoder citation or other special resource of special columns of acoder citation or other special resource of special columns of acoder citation or other special resource of special columns of acoder citation or other special resource of special columns of acoder citation or other special resource of special columns of special columns of acoder citation or other special resource of special columns or special				
C. DOCUMENTS CONSIDERED TO BE RELEVANT Category* Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim N US 4,282,233 A (VILANI) 04 August 1981, see column 2, lines 13-19 and column 3, lines 5-12. US 4,847,275 A (TODA et al.) 11 July 1989, see column 5, lines 3-6, column 6, lines 58-64, column 90, lines 15-25 and columns 101-102 Example No. 1(230). US 5,030,643 A (BERNSTEIN et al.) 09 July 1991, see column 5, lines 55-65 and column 19, lines 45-50. US 5,270,324 A (ZAMBONI et al.) 14 December 1993, see column 6, lines 55-60, column 13, lines 10-12, column 68, line 57 - column 69, line 12. Yeuther documents are listed in the continuation of Box C. Special estegories of cited documents: document defining the general state of the set which is not considered to be of particular relevance; the claimed invation but cited to understand the protection of an about relation of an acoustic condition of an acoustic continuation of acoustic referring to an onal disclosure, use, schibition or other seasons document information of acoustic acoust	Electronic data base consulted during the	nternational search (name of data base and, where practicable, sea	rch terms used)	
Category* Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim N US 4,282,233 A (VILANI) 04 August 1981, see column 2, lines 13-19 and column 3, lines 5-12. US 4,847,275 A (TODA et al.) 11 July 1989, see column 5, lines 3-6, column 6, lines 58-64, column 90, lines 15-25 and columns 101-102 Example No. 1(230). US 5,030,643 A (BERNSTEIN et al.) 09 July 1991, see column 5, lines 55-65 and column 19, lines 45-50. US 5,270,324 A (ZAMBONI et al.) 14 December 1993, see column 6, lines 55-60, column 13, lines 10-12, column 68, line 57 - column 69, line 12. Further documents are listed in the continuation of Box C. See patent family annex. Special collegaries of cited documents: 'Y' document defining the general state of the art which is not considered to be of particular relevance; the claimed investion cannot be conditive which may throw doubt on privity claim(s) or which is cited to subtlaid the problem of subtlaid the problem of subtlaid the problem of subtlaid the problem of the comment published on or a flort the international filing date or received to whom a document derivation of subtlaid the problem of the comment published prior to the international filing date or other special revenue (se specified) document referring to as onal disclosure, use, exhibition of order the comment of publication relevance; the chiamed investion cannot be considered to whom the survey and published prior to the international search To the actual completion of the international search Date of mailing of the international search report 1 6 APR 1997 Authorized officer RAYMOND J. HENLEY III				
Category* Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim N US 4,282,233 A (VILANI) 04 August 1981, see column 2, lines 13-19 and column 3, lines 5-12. US 4,847,275 A (TODA et al.) 11 July 1989, see column 5, lines 3-6, column 6, lines 58-64, column 90, lines 15-25 and columns 101-102 Example No. 1(230). US 5,030,643 A (BERNSTEIN et al.) 09 July 1991, see column 5, lines 55-65 and column 19, lines 45-50. US 5,270,324 A (ZAMBONI et al.) 14 December 1993, see column 6, lines 55-60, column 13, lines 10-12, column 68, line 57 - column 69, line 12. Further documents are listed in the continuation of Box C. See patent family annex. Special collegaries of cited documents: 'Y' document defining the general state of the art which is not considered to be of particular relevance; the claimed investion cannot be conditive which may throw doubt on privity claim(s) or which is cited to subtlaid the problem of subtlaid the problem of subtlaid the problem of subtlaid the problem of the comment published on or a flort the international filing date or received to whom a document derivation of subtlaid the problem of the comment published prior to the international filing date or other special revenue (se specified) document referring to as onal disclosure, use, exhibition of order the comment of publication relevance; the chiamed investion cannot be considered to whom the survey and published prior to the international search To the actual completion of the international search Date of mailing of the international search report 1 6 APR 1997 Authorized officer RAYMOND J. HENLEY III				
Category* Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim N US 4,282,233 A (VILANI) 04 August 1981, see column 2, lines 13-19 and column 3, lines 5-12. US 4,847,275 A (TODA et al.) 11 July 1989, see column 5, lines 3-6, column 6, lines 58-64, column 90, lines 15-25 and columns 101-102 Example No. 1(230). US 5,030,643 A (BERNSTEIN et al.) 09 July 1991, see column 5, lines 55-65 and column 19, lines 45-50. US 5,270,324 A (ZAMBONI et al.) 14 December 1993, see column 6, lines 55-60, column 13, lines 10-12, column 68, line 57 - column 69, line 12. Further documents are listed in the continuation of Box C. Sec patent family annex. Special categories of cited documents: document defining the general state of the art which is not considered to be of particular relevance; the claimed investion cause to the control referring to as on all disclosure, use, subhidion or other special reason (se specified) document published points to the international filing date or other special reason (se specified) document referring to as on all disclosure, use, subhidion or other mates document published points to the international filing date but later date document published priority date claimed investion caused to exceed the state of published priority date claimed investion caused to exceed the state of published priority date completion of the international search 2. **Commissioner of Patents and Trademarks Date of mailing address of the ISA/US Commissioner of Patents and Trademarks Authorized officer RAYMOND J. HENLEY III	C DOCINENTS CONCIDENTS			
US 4,282,233 A (VILANI) 04 August 1981, see column 2, lines 13-19 and column 3, lines 5-12. US 4,847,275 A (TODA et al.) 11 July 1989, see column 5, lines 3-6, column 6, lines 58-64, column 90, lines 15-25 and columns 101-102 Example No. 1(230). US 5,030,643 A (BERNSTEIN et al.) 09 July 1991, see column 5, lines 55-65 and column 19, lines 45-50. US 5,270,324 A (ZAMBONI et al.) 14 December 1993, see column 6, lines 55-60, column 13, lines 10-12, column 68, line 57 - column 69, line 12. Further documents are listed in the continuation of Box C. See patent family annex. Special categories of cited documents: a set of document published on or after the international filing date or considered to be of particular relevance; the chizand investion cannot be conditived movel or theory underlying the investion cannot be conditived which may throw doubt on privity chair(s) or which is cited to wholkight the published on or after the international filing date or other special reason (se specified) document referring to as and disclosure, use, shibition or other special reason (se specified) document referring to as and disclosure, use, shibition or other special reason (se specified) document referring to as and disclosure, use, shibition or other special reason (se specified) document referring to as and disclosure, use, shibition or other special reason (se specified) document referring to as and disclosure, use, shibition or other special reason (se specified) document referring to as and disclosure, use, shibition or other special reason (se specified) document referring to as and disclosure, use, shibition or other special reason (se specified) document referring to as and disclosure, use, shibition or other special reason (se specified) document referring to as or and disclosure, use, shibition of the specified shib				
US 4,847,275 A (TODA et al.) 11 July 1989, see column 5, lines 3-6, column 6, lines 58-64, column 90, lines 15-25 and columns 101-102 Example No. 1(230). US 5,030,643 A (BERNSTEIN et al.) 09 July 1991, see column 5, lines 55-65 and column 19, lines 45-50. US 5,270,324 A (ZAMBONI et al.) 14 December 1993, see column 6, lines 55-60, column 13, lines 10-12, column 68, line 57 - column 69, line 12. Further documents are listed in the continuation of Box C. Special categories of cited documents: document defining the general state of the at which is not considered to be of particular retirement. easter document published on or after the international filing date content to be of particular retirement. caster document published on or after the international filing date content to be of particular retirement in the continuation cannot be considered to a worshold about published on or after the international filing date content to be of particular retirement; the claimed invention cannot be considered to involve an invention cannot be considered to involve and invention cannot be consi	Category* Citation of document, w	n indication, where appropriate, of the relevant passages	elevant to claim No.	
US 4,847,275 A (TODA et al.) 11 July 1989, see column 5, lines 3-6, column 6, lines 58-64, column 90, lines 15-25 and columns 101-102 Example No. 1(230). US 5,030,643 A (BERNSTEIN et al.) 09 July 1991, see column 5, lines 55-65 and column 19, lines 45-50. US 5,270,324 A (ZAMBONI et al.) 14 December 1993, see column 6, lines 55-60, column 13, lines 10-12, column 68, line 57 - column 69, line 12. Further documents are listed in the continuation of Box C. Special categories of cited documents: document defining the general state of the art which is not considered to be of particular relevence. earlier document published on or after the international filing date document published on or after the international filing date document of princible or theory utaching the invention caused the considered in the art which is not considered to considered to considered to be order profession date of another chaise or either special review considered to a considered to involve an invention caused the considered to a considered to involve an invention caused the considered to involve and invention caused the considered to involve an invention caused the considered to involve and invention caused the c	US 4,282,233 A (ILANI) 04 August 1981, see column 2 1-	12	
lines 3-6, column 6, lines 58-64, column 90, lines 15-25 and columns 101-102 Example No. 1(230). US 5,030,643 A (BERNSTEIN et al.) 09 July 1991, see column 5, lines 55-65 and column 19, lines 45-50. US 5,270,324 A (ZAMBONI et al.) 14 December 1993, see column 6, lines 55-60, column 13, lines 10-12, column 68, line 57 - column 69, line 12. Special categories of cited documents: Special categories of cited documents are listed in the continuation of Box C. Special categories of cited documents of the art which is not considered to be of particular reference. cartier document published are of the art which is not considered of consent which may shrow doubte on priority clain(d) or which is cited to establish the publication date of another citation or other operial reason (as specified) document referring to as onal dictosure, use, establision or other managements of the article of the actual completion of the international filing date but later than the considered to involve as inventive step when the document is emphasion which one or one step when the document is combined with one or proving deviation to a previous fractivation or cannot be considered to involve as inventive step when the document is combined with one or more and family annex. To add the actual completion of the international filing date or priority claim(d) or which is considered to involve as inventive step when the document is combined with one or more action considered to involve as inventive step when the document is combined with one or more action family annex. To add the actual completion of the international search Authorized officer RAYMOND J. HENLEY III	lines 13-19 and co	umn 3, lines 5-12.	•-	
lines 3-6, column 6, lines 58-64, column 90, lines 15-25 and columns 101-102 Example No. 1(230). US 5,030,643 A (BERNSTEIN et al.) 09 July 1991, see column 5, lines 55-65 and column 19, lines 45-50. US 5,270,324 A (ZAMBONI et al.) 14 December 1993, see column 6, lines 55-60, column 13, lines 10-12, column 68, line 57 - column 69, line 12. Further documents are listed in the continuation of Box C. Special categories of cited documents: document defining the general state of the art which is not considered to be of particular relevance easter document published on or after the international filing date document which may throw doubt on priority clain(s) or which is expecial reason (se specified) and an or after the international filing date document which may throw doubt on priority clain(s) or which is expecial reason (se specified) and the or another clains or other special reason (se specified) and the or another clains or other special reason (se specified) and the original priority date claimed investion cannot be considered to involve an investion cannot be considered to involve and excellent such when the document at the such considered to involve and excellent when the document and involve and excellent su				
Ines 3-6, column 6, lines 58-64, column 90, lines 15-25 and columns 101-102 Example No. 1(230). US 5,030,643 A (BERNSTEIN et al.) 09 July 1991, see column 5, lines 55-65 and column 19, lines 45-50. US 5,270,324 A (ZAMBONI et al.) 14 December 1993, see column 6, lines 55-60, column 13, lines 10-12, column 68, line 57 - column 69, line 12. Further documents are listed in the continuation of Box C. Special categories of cited documents: document defining the general state of the art which is not considered to be of particular relevance: cartier document published on or after the international filing date documents defining the general state of the art which is not considered to be of particular relevance: cartier document published on or after the international filing date documents of particular relevance; the claimed investion cannot be considered to involve an inventive step when the document of particular relevance; the claimed investion cannot be considered to involve an inventive step when the document are the comment of particular relevance; the claimed investion cannot be considered to involve an inventive step when the document are the comment of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document are the comment particular relevance; the claimed invention cannot be considered to involve an inventive step when the document are the comment of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document are the comment of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document are the particular relevance; the claimed invention cannot be considered to involve an inventive step when the document are the considered to involve an inventive step when the document are the considered to involve an inventive step when the document are the considered to involve an inventive step when the document are the considered to involve an inventive step	1 20 10 11 12 10 17 11	ODA et al.) 11 July 1989, see column 5, 1-	12	
US 5,030,643 A (BERNSTEIN et al.) 09 July 1991, see column 5, lines 55-65 and column 19, lines 45-50. US 5,270,324 A (ZAMBONI et al.) 14 December 1993, see column 6, lines 55-60, column 13, lines 10-12, column 68, line 57 - column 69, line 12. Further document defining the general state of the art which is not considered to be of paticular reformance: active document under the international filing date of priority chain of the state of the considered to involve an inventive step of the considered to the considered to involve an inventive step of the considered to involve an inven	lines 3-6, column 6	lines 58-64, column 90, lines 15-25 and		
Column 5, lines 55-65 and column 19, lines 45-50. US 5,270,324 A (ZAMBONI et al.) 14 December 1993, see column 6, lines 55-60, column 13, lines 10-12, column 68, line 57 - column 69, line 12. Further documents are listed in the continuation of Box C. Special categories of cited documents: document defining the general state of the art which is not considered to be of particular relevance: earlier document published on or after the international filing date document which may throw doubts on priority claim(s) or which is cited to enable the publication date of another criation or other special reason (as specified) document referring to as a real disclosure, use, exhibition or other means document published prior to the international filing date but later than the priority date claimed To document published prior to the international filing date but later than the priority date claimed To document published prior to the international filing date but later than the priority date claimed To document published relevance; the claimed investion cannot be considered to involve an inventive step when the document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document of particular relevance; the claimed inventive step when the document as taken alone or involve an inventive step when the document of particular relevance; the claimed inventive step when the document published relevance; the claimed inventive step when the document of particular relevance; the claimed inventive step when the document of particular relevance; the claimed inventive step when the document of particular relevance; the claimed inventive step when the document in taken alone. To document member of the same patent family Date of mailing of the international search report 1 6 APR 1997 Authorized officer RAYMOND J. HENLEY III	columns 101-102	xample No. 1(230).		
Column 5, lines 55-65 and column 19, lines 45-50. US 5,270,324 A (ZAMBONI et al.) 14 December 1993, see column 6, lines 55-60, column 13, lines 10-12, column 68, line 57 - column 69, line 12. Further documents are listed in the continuation of Box C. Special categories of cited documents: document defining the general state of the art which is not considered to be of particular relevance: artific document which may throw doubts on priority claim(s) or which in cited to enablish the publication date of another citation or other special reason (see special reason (see special forable discounced published prior to the international filing date but later than document referring to an oral disclosure, use, exhibition or other means document published prior to the international filing date but later than the priority date chained cof the actual completion of the international search MARCH 1997 The and mailing address of the ISA/US symmissioner of Patents and Trademarks in Patents and Trade	115 5 000 040			
US 5,270,324 A (ZAMBONI et al.) 14 December 1993, see column 6, lines 55-60, column 13, lines 10-12, column 68, line 57 - column 69, line 12. Further documents are listed in the continuation of Box C.	100 0,000,010 7	BERNSTEIN et al.) 09 July 1991, see 1-	12	
Column 6, lines 55-60, column 13, lines 10-12, column 68, line 57 - column 69, line 12. Further documents are listed in the continuation of Box C. See patent family annex.	column 5, lines 55-	35 and column 19, lines 45-50.		
Column 6, lines 55-60, column 13, lines 10-12, column 68, line 57 - column 69, line 12. Special categories of cited documents: document defining the general state of the art which is not considered to be of particular relevance: earlier document published on or after the international filing date document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another critation or other special reason (as specified) document referring to an oral disclosure, use, exhibition or other means document published prior to the international filing date but later than depriority date chaimed investion cannot be considered to involve an inventive step when the document as combined with one or more subtract step when the documents, such combination being obvious to a person skilled in the art document member of the same patent family Date of mailing of the international search report 1 6 APR 1997 Authorized officer RAYMOND J. HENLEY III	US 5 270 224 A (5	AMPONIA		
Further documents are listed in the continuation of Box C. Special categories of cited documents: document defining the general state of the art which is not considered to be of particular relevance: earlier document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (se specified) document referring to an oral disclosure, use, exhibition or other mones document returning to an oral disclosure, use, exhibition or other mones document published prior to the international filing date but later than the priority date claimed and mailing address of the ISA/US omnuissioner of Patents and Trademarks ox PCT ashington, D.C. 20231	Column 6 lines 55	AMBUNI et al.) 14 December 1993, see 1-1	12	
Further documents are listed in the continuation of Box C. Special categories of cited documents: document defining the general state of the art which is not considered to be of particular relevance earlier document published on or after the international filing date document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) document referring to an oral disclosure, use, exhibition or other means document published prior to the international filing date but later than the priority date chained in the art to considered to involve an inventive step when the document is taken alone To document published prior to the international filing date but later than the priority date chained in the art to considered to involve an inventive step when the document is taken alone To document published prior to the international filing date but later than the priority date chained in the art to considered to involve an inventive step when the document is taken alone To document published prior to the international filing date but later than the priority date chained in the art to considered to involve an inventive step when the document is taken alone To document published prior to the international filing date but later than the priority date chained in the art to considered to involve an inventive step when the document is taken alone To document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is taken alone To document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is taken alone To document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is taken alone To document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is taken alone To document publish	line 57 - column 69, tine 13			
Special categories of cited documents: document defining the general state of the art which is not considered to be of particular relevance of the art which is not considered to be of particular relevance; the claimed invention cannot be considered document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other appecial reason (as specified) document referring to an oral disclosure, use, exhibition or other means document published prior to the international filing date but later than the priority date claimed or of the actual completion of the international search MARCH 1997 To and mailing address of the ISA/US antimissioner of Patents and Trademarks Atthorized officer RAYMOND J. HENLEY III	, 07 00idiiii 03	inie 12.		
Special categories of cited documents: document defining the general state of the art which is not considered to be of particular relevance: earlier document published on or after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention cannot be considered novel or cannot be considered to involve an inventive step when the document referring to an oral disclosure, use, exhibition or other means document published prior to the international filing date but later than the priority date claimed MARCH 1997 The and mailing address of the ISA/US Date of mailing of the international search report Authorized officer RAYMOND J. HENLEY III	•			
Special categories of cited documents: document destining the general state of the art which is not considered to be of particular relevance earlier document published on or after the international stiling date document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other appeared referring to an oral disclosure, use, exhibition or other means document published prior to the international filing date but later than the priority date claimed To the actual completion of the international search To the actual completion of the ISA/US ournmissioner of Patents and Trademarks Authorized officer RAYMOND J. HENLEY III				
Special categories of cited documents: document destining the general state of the art which is not considered to be of particular relevance earlier document published on or after the international stiling date document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other appeared referring to an oral disclosure, use, exhibition or other means document published prior to the international filing date but later than the priority date claimed The document published prior to the international filing date but later than the priority date claimed The document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is taken alone The document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art document published prior to the international search Date of mailing of the international search report 1 MARCH 1997 The and mailing address of the ISA/US Sommissioner of Patents and Trademarks ON PCT ashington, D.C. 20231 The APR 1997 Authorized officer RAYMOND J. HENLEY III	1			
Special categories of cited documents: document defining the general state of the art which is not considered to be of particular relevance: earlier document published on or after the international filing date earlier document published on or after the international filing date earlier document published on or after the international filing date earlier document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other appecial reason (se specified) document referring to an oral disclosure, use, exhibition or other mosts document published prior to the international filing date but later than the priority date claimed cof the actual completion of the international search Date of mailing of the international search report Authorized officer RAYMOND J. HENLEY III		•		
Special categories of cited documents: document defining the general state of the art which is not considered to be of particular relevance cartier document published on or after the international filing date principle or theory underlying the invention cannot be considered moved or cannot be considered to establish the publication date of another citation or other appecial reason (as specified) document referring to an oral disclosure, use, exhibition or other mosas document published prior to the international filing date but later than the priority date claimed MARCH 1997 The and mailing address of the ISA/US ournation, D.C. 20231 The address of the APR 1997 Internation, D.C. 20231 International filing date or priority date on priority date on our considered to involve an inventive step when the document is understand to involve an inventive step when the document is combined with one or more other such document is combined with one or more other such document is understand to involve an inventive step when the document is combined with one or more other such document is combined with one or more other such document is combined with one or more other such document is such combination. The analysis of the international filing date but later than the priority date claimed. Authorized officer RAYMOND J. HENLEY III	Further documents are listed in the	entinuation of Box C. See patent family annex	· · · · · · · · · · · · · · · · · · ·	
document defining the general state of the art which is not considered to be of particular relevance earlier document published on or after the international filing date document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) document referring to an oral disclosure, use, exhibition or other means document published prior to the international filing date but later than the priority date claimed cof the actual completion of the international search MARCH 1997 The and mailing address of the ISA/US commissioner of Patents and Trademarks Authorized officer RAYMOND J. HENLEY III	Special categories of cited documents:		15"	
document published on or after the international filing date document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) document referring to an oral disclosure, use, exhibition or other means document published prior to the international filing date but later than the priority date claimed document published prior to the international search MARCH 1997 The and mailing address of the ISA/US commissioner of Patents and Trademarks Authorized officer RAYMOND J. HENLEY III	document defining the general state of the a	GERG WELL DOLLER CONTINUE WITH the application but	cited to understand the	
document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) document referring to an oral disclosure, use, exhibition or other means document published prior to the international filing date but later than the priority date claimed c of the actual completion of the international search MARCH 1997 The and mailing address of the ISA/US commissioner of Patents and Trademarks Authorized officer RAYMOND J. HENLEY III	•			
document of particular retevance; the claimed invention cannot be considered to involve an inventive step when the document is considered to inventive and inventive step when the document is considered to inventive and inventi	document which may throw doubts on aci-	considered novel or cannot be considered to in	volve an inventive step	
document referring to an oral disclosure, use, exhibition or other means document published prior to the international filing date but later than the priority date claimed c of the actual completion of the international search I MARCH 1997 The and mailing address of the ISA/US commissioner of Patents and Trademarks Output to the investive at provide an investive at the wind occurrent is combined with one or more other such document, such combination being obvious to a person skilled in the art document member of the same patent family Date of mailing of the international search report 1 6 APR 1997 Authorized officer RAYMOND J. HENLEY III	creat to establish the publication date of	other citation or other Y document of particular reference; the claims		
document published prior to the international filing date but later than the priority date claimed the priority date claimed The of the actual completion of the international search Date of mailing of the international search report I MARCH 1997 The and mailing address of the ISA/US ommissioner of Patents and Trademarks OX PCT Vashington, D.C. 20231 RAYMOND J. HENLEY III	document referring to an oral disclosure,	COMMISSION TO COVOING AN INVESTIGATION AND THE	han dia diaminana is	
the priority date claimed the of the actual completion of the international search Date of mailing of the international search report 1 MARCH 1997 The and mailing address of the ISA/US Commissioner of Patents and Trademarks Ox PCT Satington, D.C. 20231 RAYMOND J. HENLEY III		being dovious to a person skilled in the art	erra, such comonission	
I MARCH 1997 The and mailing address of the ISA/US commissioner of Patents and Trademarks by PCT ashington, D.C. 20231 RAYMOND J. HENLEY III	the priority date claumed	a total of the same patent family		
ne and mailing address of the ISA/US commissioner of Patents and Trademarks ox PCT ashington, D.C. 20231 RAYMOND J. HENLEY III	e of the actual completion of the interna	onal search Date of mailing of the international search re-	port -	
ne and mailing address of the ISA/US outmissioner of Patents and Trademarks ox PCT (ashington, D.C. 20231 Authorized officer RAYMOND J. HENLEY III	1 MARCH 1997	1 6 APR 1997		
ommissioner of Patents and Trademarks ox PCT ashington, D.C. 20231 RAYMOND J. HENLEY III	ne and mailing address of the ISA/US			
1	ommissioner of Patents and Trademarks ox PCT		2	
	•	1	$\gamma_{\alpha A}$	
resimile No. (703) 305-3230 Telephone No. (703) 308-1235 Telephone No. (703) 308-1235	aimue No. (703) 305-3230	Telephone No. (703) 308-1235	ナツン	

INTERNATIONAL SEARCH REPORT

International application No. PCT/US97/01799

	Charles of the colorest materials with an amountainty of the substant macrosses	Relevant to claim No.
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to cialm No
Y	US 5,472,964 A (YOUNG et al.) 05 December 1995, see column 10, lines 5-14, column 16, lines 3-4, column 67, Example 4B, and column 102, lines 53-61.	1-12
Y,P	US 5,565,473 A (BELLEY et al.) 15 October 1996, see column 8, line 62 - column 9, line 4, column 15 lines 4-6 and column 79, Example 161.	1-12
		·